```
Set   Items  Description

S1      51106    S (HETEROGENEOUS OR DIFFERENT OR SEPARATE) (3N) (PROCESSOR? ?
OR COMPUTER? ? OR CPU? ? OR CENTRAL()PROCESSING OR SERVER? ? OR
MICROCOMPUTER? ? OR PC OR COMPUTING OR MAINFRAME? ? OR MAIN()(FRAME OR
FRAMES))
S2       4451    S JVM OR JAVA()VIRTUAL()MACHINE? ? OR JAVA(3N) INTERPRETER OR
JAVA(2N) RUNTIME OR JIT
S3       1905    S COMMON()MEMORY
S4      21111    S DIRECT()MEMORY()ACCESS OR DMA
S5          0    S S1 (50N) S2 (50N) S3 (50N) S4
S6         19    S S1 (3N) S2
S7          7    S S6 AND PY<2003
S8         23    S S3 (10N) S4
S9         21    S S2 (100N) S4
S10        11    S S9 AND PY< 2003
```

10| 670|836

EIC Search Results

7/3K/1 (Item 1 from file: 348) **Links**
 Fulltext available through: Order File History
EUROPEAN PATENTS
01431996
Data processing apparatus, system and method
Datenverarbeitungsvorrichtung, System und Verfahren
Appareil, systeme et methode de traitement de donnees

Patent Assignee:

- **Texas Instruments Incorporated**; (279078)
  7839 Churchill Way, Mail Station 3999; Dallas, Texas 75251; US\(Applicant designated states:
  BE; CH; DE; DK; ES; FI; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; TR; AT; CY)
- **TEXAS INSTRUMENTS FRANCE**; (460913)
  821, avenue Jack Kilby, B.P. 5; 06271 Villeneuve Loubet Cedex; FR\(Applicant designated states:
  FR)
- **Institut National de Recherche en Informatique et en Automatique INRIA**; (275934)
  Unite de Recherche INRIA Rennes - IRISA, Campus Universitaire de Beaulieu; 35042 Rennes
  Cedex; FR\(Applicant designated states:
  AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; TR)

Inventor:

- **Cabillac, Gilbert**
  15 Rue des Potiers; 35230 Noyal Chatillon Sur Seine; (FR)
- **Lesot, Jean Phillippe**
  La Geraudiere; 35370 Etrelles; (FR)
- **Banatre, Michel**
  28 rue Masse; 35111 La Fresnais; (FR)
- **Routeau, Jean-Paul**
  8 Rue Chatolais; 35235 Thorigne Fouillard; (FR)
- **Parrain, Frederic**
  14 Avenue P. Donzelot; 35000 Rennes; (FR)
- **Issarny, Valerie**
  28 Rue Georges Maliard; 78800 Houilles; (FR)
- **Higuera, Teresa**
  12 Rue Theophile Gautier; 75016 Paris; (FR)
- **Chauvel, Gerard**
  Residence du Valbosquet 20; 292 Chemin du Valbosquet, 06600 Antibes; (FR)
- **D'Inverno, Dominique**
  47 Chemin des Basses Ginestieres; 06270 Villeneuve-Loubet; (FR)

• Lassere, Serge
    278 Rue du Marsaou; Lieudit St Jean de Cannes, 83600 Frejus; (FR)

Legal Representative:

• Potter, Julian Mark et al (80064)
    D. Young & Co., 21 New Fetter Lane; London EC4A 1DA; (GB)

	Country	Number	Kind	Date	
Patent	EP	1211598	A1	20020605	(Basic)
Application	EP	2000403344		20001129	

Designated States:
AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;
GR; IE; IT; LI; LU; MC; NL; PT; SE; TR;

Extended Designated States:
AL; LT; LV; MK; RO; SI;

International Patent Class (V7): G06F-009/45 **Abstract Word Count:** 108
NOTE: 3
NOTE: Figure number on first page: 3

Type	Pub. Date	Kind	Text
Publication: English			
Procedural: English			
Application: English			

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200223	884
SPEC A	(English)	200223	7873
Total Word Count (Document A) 8757			
Total Word Count (Document B) 0			
Total Word Count (All Documents) 8757			

Specification: ...mappings 218. In order to be able to generate different aspects or versions of a **JAVA Virtual Machine** for **different** target host **processors** within a multi-processor system, several different modules are configured to implement the same services...

   Fulltext available through: Order File History
EUROPEAN PATENTS
01423355
Stub search loading system and method, server apparatus, client apparatus, and computer-readable recording medium
Stubsuchladesystem und -Verfahren, Serverapparat, Clientapparat und computerlesbares Aufzeichnungsmedium
Systeme et methode de recherche de chargement de talon, serveur, client et support informatique d'enregistrement

Patent Assignee:

• **NEC CORPORATION**; (236690)
   7-1, Shiba 5-chome, Minato-ku; Tokyo; (JP)
   (Applicant designated States: all)

Inventor:

• **Takagi, Junji**
   NEC Corporation, 7-1, Shiba 5-chome; Minato-ku, Tokyo; (JP)

Legal Representative:

• **VOSSIUS & PARTNER (100314)**
   Siebertstrasse 4; 81675 Munchen; (DE)

	Country	Number	Kind	Date	
Patent	EP	1202174	A2	20020502	(Basic)
	EP	1202174	A3	20040721	
Application	EP	2001124343		20011022	
Priorities	JP	2000322269		20001023	

Designated States:
DE; GB; IT;

Extended Designated States:
AL; LT; LV; MK; RO; SI;

International Patent Class (V7): G06F-009/46 **Abstract Word Count:** 132
NOTE: 1
NOTE: Figure number on first page: 1

Type	Pub. Date	Kind	Text
Publication: English			
Procedural: English			
Application: English			

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200218	2298

SPEC A	(English)	200218	7039
Total Word Count (Document A) 9337			
Total Word Count (Document B) 0			
Total Word Count (All Documents) 9337			

Specification: ...the Java runtime environments 110 of the same type. However, if the types of the **Java runtime** environments are **different**, only a client **computer** having a **Java runtime** environment adaptive to the stub class downloaded from the server computer 103 normally operates, though... ...server apparatus, client apparatus, and computer-readable recording medium, which allow a plurality of client **computers** using **different** types of **Java runtime** environments to download, from a single server computer, a stub class that can be used ...

7/3K/3 (Item 3 from file: 348) **Links**
   Fulltext available through: Order File History
EUROPEAN PATENTS
01347244
DATA TRANSFER METHOD AND APPARATUS
DATENUBERTRAGUNGSVERFAHREN UND VORRICHTUNG
PROCEDE ET APPAREIL DE TRANSFERT DE DONNEES

Patent Assignee:

• **BRITISH TELECOMMUNICATIONS public limited company**; (846100)
   81 Newgate Street; London EC1A 7AJ; (GB)
   (Proprietor designated states: all)

Inventor:

• **POWER, Mark Philip James**
   Elidir,Tomline Court; Nacton,Suffolk IP10 0HX; (GB)

Legal Representative:

• **Nash, Roger William et al (87682)**
   BT Group Legal Intellectual Property Department PP C5A BT Centre 81 Newgate Street;
   London EC1A 7AJ; (GB)

	Country	Number	Kind	Date	
Patent	EP	1260078	A2	20021127	(Basic)
	EP	1260078	B1	20070110	
	WO	2001065801		20010907	
Application	EP	2001905908		20010216	
	WO	2001GB662		20010216	
Priorities	EP	2000301648		20000301	

Designated States:
DE; FR; GB;

Extended Designated States:
AL; LT; LV; MK; RO; SI;

International Patent Class (V7): H04L-029/06

IPC	Level	Value	Position	Status	Version	Action	Source	Office
H04L- 0029/06	A	I	F	B	20060101	20010911	H	EP

NOTE: No A-document published by EPO

Type	Pub. Date	Kind	Text
Publication: English			
Procedural: English			

Application: English

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200702	1032
CLAIMS B	(German)	200702	1030
CLAIMS B	(French)	200702	1309
SPEC B	(English)	200702	4416
Total Word Count (Document A) 0			
Total Word Count (Document B) 7787			
Total Word Count (All Documents) 7787			

Specification: ...on the client computer and provide a secure execution environment (called the Java Virtual Machine (**JVM**)) on the client **computer** which is **separate** from the normal execution environment of the client computer (for example Windows). Most web browsers...

Fulltext available through: <u>Order File History</u>
EUROPEAN PATENTS
01273728
METHOD AND SYSTEM FOR DISTRIBUTING OBJECT-ORIENTED COMPUTER PROGRAMS
VERFAHREN UND SYSTEM ZUM VERTEILEN VON OBJEKTORIENTIERTEN RECHNERPROGRAMMEN
METHODE ET SYSTEME DE DISTRIBUTION DE LOGICIELS ORIENTES OBJET

Patent Assignee:

● **TAO GROUP LIMITED;** (1796852)
    62/63 Suttons Business Park, Sutton Park Avenue; Earley, Reading RG6 1AZ; (GB)
    (Proprietor designated states: all)

Inventor:

● **HINSLEY, Christopher, Andrew**
    19 Martin's Drive; Wokingham, Berkshire RG41 1NY; (GB)
● **RENOUF, Timothy**
    20 Chesterfield Road; Newbury, Berkshire RG14 7QB; (GB)

Legal Representative:

● **Maggs, Michael Norman et al (59191)**
    Kilburn & Strode 20 Red Lion Street; London WC1R 4PJ; (GB)

	Country	Number	Kind	Date	
Patent	EP	1214645	A2	20020619	(Basic)
	EP	1214645	B1	20031105	
	WO	2001016700		20010308	
Application	EP	2000953341		20000816	
	WO	2000GB3172		20000816	
Priorities	GB	9920676		19990901	

Designated States:
AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;
GR; IE; IT; LI; LU; MC; NL;

Extended Designated States:
AL; LT; LV; MK; RO; SI;

International Patent Class (V7): G06F-009/45
NOTE: No A-document published by EPO

Type	Pub. Date	Kind	Text
Publication: English			
Procedural: English			
Application: English			

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200345	1052
CLAIMS B	(German)	200345	990
CLAIMS B	(French)	200345	1085
SPEC B	(English)	200345	5261
Total Word Count (Document A) 0			
Total Word Count (Document B) 8388			
Total Word Count (All Documents) 8388			

Specification: ...JIT is processor-dependent, the server would in such an arrangement have to maintain a **different JIT** for each **processor** type that might require to be served. While that might be possible in a fixed...

Fulltext available through: Order File History
PCT FULLTEXT
00832181
DATA TRANSFER METHOD AND APPARATUS
PROCEDE ET APPAREIL DE TRANSFERT DE DONNEES

Patent Applicant/Patent Assignee:

- **BRITISH TELECOMMUNICATIONS PUBLIC LIMITED COMPANY**; 81 Newgate Street,
  London EC1A 7AJ
  GB; GB(Residence); GB(Nationality)
  (For all designated states except: US)
- **POWER Mark Philip James**; Elidir, Tomline Court, Nacton, Suffolk IP10 0HX
  GB; GB(Residence); GB(Nationality)
  (Designated only for: US)

Patent Applicant/Inventor:

- **POWER Mark Philip James**
  Elidir, Tomline Court, Nacton, Suffolk IP10 0HX; GB; GB(Residence); GB(Nationality);
  (Designated only for: US)

Legal Representative:

- **ROBINSON Simon Benjamin(agent)**
  BT Group Legal Services, Intellectual Property Department, Holborn Centre, 8th floor, 120
  Holborn, London EC1N 2TE; GB;

	Country	Number	Kind	Date
Patent	WO	200165801	A2-A3	20010907
Application	WO	2001GB662		20010216
Priorities	EP	2000301648		20000301

Designated States: (All protection types applied unless otherwise stated - for applications 2004+)

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;
GR; IE; IT; LU; MC; NL; PT; SE; TR;

Publication Language: English
Filing Language: English
Fulltext word count: 6716

Detailed Description:

...on the client computer and provide a secure execution environment (called the Java Virtual
Machine (**JVM**)) on the client **computer** which is **separate** from the normal execution environment

of the client computer (for example Windows). Most web browsers...

00832180
DATA TRANSFER METHOD AND APPARATUS
PROCEDE ET APPAREIL DE TRANSFERT DE DONNEES

Patent Applicant/Patent Assignee:

- **BRITISH TELECOMMUNICATIONS PUBLIC LIMITED COMPANY**; 81 Newgate Street,
   London EC1A 7AJ
   GB; GB(Residence); GB(Nationality)
   (For all designated states except: US)
- **POWER Mark Philip James**; Elidir, Tomline Court, Nacton, Ipswich, Suffolk IP10 0HX
   GB; GB(Residence); GB(Nationality)
   (Designated only for: US)

Patent Applicant/Inventor:

- **POWER Mark Philip James**
   Elidir, Tomline Court, Nacton, Ipswich, Suffolk IP10 0HX; GB; GB(Residence);
   GB(Nationality); (Designated only for: US)

Legal Representative:

- **ROBINSON Simon Benjamin(agent)**
   BT Group Legal Services, Intellectual Property Dept., Holborn Centre, 8th floor, 120 Holborn,
   London EC1N 2TE; GB;

	Country	Number	Kind	Date
Patent	WO	200165800	A2-A3	**20010907**
Application	WO	2001GB646		20010216
Priorities	EP	2000301658		20000301

Designated States: (All protection types applied unless otherwise stated - for applications 2004+)

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;
GR; IE; IT; LU; MC; NL; PT; SE; TR;

Publication Language: English
Filing Language: English
Fulltext word count: 5694

Detailed Description:

...on the client computer and provide a secure execution environment (called the Java Virtual
Machine (**JVM**)) on the client **computer** which is **separate** from the normal execution environment

of the client computer (for example Windows). Most web browsers...

 Fulltext available through: Order File History
PCT FULLTEXT
00803942
DATA COLLECTION NETWORK APPLIANCE AND METHOD
PPAREIL ET PROCEDE DE RESEAU POUR LA COLLECTE DE DONNEES

Patent Applicant/Patent Assignee:

• **GENERAL ELECTRIC COMPANY**; 1 River Road, Schenectady, NY 12345
  US; US(Residence); US(Nationality)

Legal Representative:

• **SNYDER Bernard(et al)(agent)**
  General Electric Company, 3135 Easton Turnpike W3C, Fairfield, CT 06431; US;

	Country	Number	Kind	Date
Patent	WO	200137533	A2-A3	20010525
Application	WO	2000US27913		20001010
Priorities	US	99441324		19991116

Designated States: (All protection types applied unless otherwise stated - for applications 2004+)

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;
GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

Publication Language: English
Filing Language: English
Fulltext word count: 5484
Detailed Description:

...machine, which is a self-contained operating environment that behaves as if it is a **separate computer**.

Typically, the **Java virtual machine** runs small Java programs that have been compiled into byte code, which can be run...

EUROPEAN PATENTS
00959597
REAL TIME PROGRAM LANGUAGE ACCELERATOR
ECHTZEITPROGRAMM-SPRACHBESCHLEUNIGER
ACCELERATEUR DE LANGAGE DE PROGRAMMATION TEMPS REEL

Patent Assignee:

• **Paran, Arik**; (2554500)
   866 Helena Drive; Sunnyvale, CA 94087; (US)
   (Proprietor designated states: all)

Inventor:

• **RAZ, Yair**
   1575 Lewiston Drive; Sunnyvale, CA 94087; (US)

Legal Representative:

• **Steil, Christian, Dipl.-Ing. et al (72534)**
   Witte, Weller & Partner, Rotebuhlstrasse 121; 70178 Stuttgart; (DE)

	Country	Number	Kind	Date	
Patent	EP	938703	A1	19990901	(Basic)
	EP	938703	B1	20030702	
	WO	98021655		19980522	
Application	EP	97951436		19971113	
	WO	97US20980		19971113	
Priorities	US	30688	P	19961113	

Designated States:
AT; BE; CH; DE; DK; ES; FI; FR; GB; GR;
IE; IT; LI; LU; MC; NL; PT; SE;

International Patent Class (V7): G06F-011/00; G06F-009/38
NOTE: No A-document published by EPO

Type	Pub. Date	Kind	Text
Publication: English			
Procedural: English			
Application: English			

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200327	1393
CLAIMS B	(German)	200327	1187
CLAIMS B	(French)	200327	1541
SPEC B	(English)	200327	5306

Total Word Count (Document A) 0
Total Word Count (Document B) 9427
Total Word Count (All Documents) 9427

Specification: ...The real time accelerator core has 10 has an intelligent stack 12 and a smart **DMA** controller 14. The real time accelerator core 10 will allow real time translation and execution...

...software based translation or interpretation in a much higher performance mode (compared to the standard **Java**(TM) **interpreter** or **JIT** compilers). It should be noted that. in the example of Figure 1, the program language...

Application: 10/670836   Date: 1/30/2008

```
Set     Items    Description
S1      20746    S (HETEROGENEOUS OR DIFFERENT OR SEPARATE) (3N) (PROCESSOR? ?
OR COMPUTER? ? OR CPU? ? OR CENTRAL()PROCESSING OR SERVER? ? OR
MICROCOMPUTER? ? OR PC OR COMPUTING OR MAINFRAME? ? OR MAIN()(FRAME OR
FRAMES))
S2       1130    S JVM OR JAVA()VIRTUAL()MACHINE? ? OR JAVA(3N) INTERPRETER OR
JAVA(2N) RUNTIME OR JIT
S3       3699    S COMMON()MEMORY
S4      13428    S DIRECT()MEMORY()ACCESS OR DMA
S5          0    S S1 (100N) S2 (100N) S3 (100N) S4
S6          4    S S1 (3N) S2
S7          2    S S6 AND PY<2003
S8          6    S S1 (10N) S2
S9          6    S S1 (20N) S2
S10         7    S S1 (30N) S2
S11         2    S S10 AND PY<2003
S12         0    S S11 NOT S7
```

   Fulltext available through: Order File History
Derwent WPIX

0012498463 *Drawing available*
WPI Acc no: 2002-446128/**200248**
XRPX Acc No: N2002-351508
Stub search loading system used in computer, transmits stub appropriate for runtime environment of client computer, based on designated stub name and client identifier
Patent Assignee: NEC CORP (NIDE)
Inventor: TAKAGI J

Patent Family (1 patents, 26 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
EP 1202174	A2	20020502	EP 2001124343	A	20011022	200248	B

Priority Applications (no., kind, date): JP 2000322069 A 20001023

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
EP 1202174	A2	EN	24	12	
Regional Designated States,Original	AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR				

Alerting Abstract ... ADVANTAGE - The client having different types of **JAVA** runtime environments efficiently downloads an appropriate **stub** from a **server within** short **time**. The need for preparing the stubs corresponding to all configurations beforehand for dynamically generating a...
... Basic Derwent Week: **200248**...

   Fulltext available through: Order File History
Derwent WPIX

0009752533
WPI Acc no: 2000-038868/**200003**
XRPX Acc No: N2000-029298
Programmable processor for word-processing, image processing and finance application
Patent Assignee: JCP COMPUTER SERVICES LTD (JCPC-N); SUN MICROSYSTEMS INC
(SUNM)
Inventor: BAND J A; PATTERSON A J; SADLER A P; STAMMERS S

Patent Family (4 patents, 85 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
WO 1999057634	A1	19991111	WO 1999GB1390	A	19990505	200003	B
AU 199937223	A	19991123	AU 199937223	A	19990505	200016	E
EP 993631	A1	20000419	EP 1999919434	A	19990505	200024	E
			WO 1999GB1390	A	19990505		
US 7069554	B1	20060627	WO 1999GB1390	A	19990505	200643	E
			US 2000478624	A	20000105		

Priority Applications (no., kind, date): GB 199814615 A 19980506; GB 19989670 A 19980506; GB
199814615 A 19980706

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes	
WO 1999057634	A1	EN	144	25		
National Designated States,Original	AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW					
Regional Designated States,Original	AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ UG ZW					
AU 199937223	A	EN			Based on OPI patent	WO 1999057634
EP 993631	A1	EN			PCT Application	WO 1999GB1390
					Based on OPI patent	WO 1999057634
Regional Designated States,Original	AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
US 7069554	B1	EN			Continuation of application	WO 1999GB1390

Original Publication Data by Authority...**Original Abstracts:**the application have been
fetched.Computer (2) is arranged to install the components in a **Java virtual machine** using a
different classloader for each component and to perform control to permit inter-component

interaction and interaction... ... Basic Derwent Week: **200003**...

.

[File 8] **Ei Compendex(R)** 1884-2008/Jan W3

[File 35] **Dissertation Abs Online** 1861-2007/Oct

[File 65] **Inside Conferences** 1993-2008/Jan 29

[File 2] **INSPEC** 1898-2008/Dec W5

[File 6] **NTIS** 1964-2008/Jan W4

[File 144] **Pascal** 1973-2008/Jan W3

[File 34] **SciSearch(R) Cited Ref Sci** 1990-2008/Jan W3

[File 434] **SciSearch(R) Cited Ref Sci** 1974-1989/Dec

[File 99] **Wilson Appl. Sci & Tech Abs** 1983-2007/Nov

[File 266] **FEDRIP** 2007/Oct

[File 95] **TEME-Technology & Management** 1989-2008/Jan W3

[File 583] **Gale Group Globalbase(TM)** 1986-2002/Dec 13
File 583: This file is no longer updating as of 12-13-2002.

[File 256] **TecInfoSource** 82-2008/Nov

[File 56] **Computer and Information Systems Abstracts** 1966-2008/Dec

[File 60] **ANTE: Abstracts in New Tech & Engineer** 1966-2008/Dec

```
Set      Items    Description
S1       39307    S (HETEROGENEOUS OR DIFFERENT OR SEPARATE) (3N) (PROCESSOR? ?
OR COMPUTER? ? OR CPU? ? OR CENTRAL()PROCESSING OR SERVER? ? OR
MICROCOMPUTER? ? OR PC OR COMPUTING OR MAINFRAME? ? OR MAIN()(FRAME OR
FRAMES))
S2       11310    S JVM OR JAVA()VIRTUAL()MACHINE? ? OR JAVA(3N) INTERPRETER OR
JAVA(2N) RUNTIME OR JIT
S3       1080     S COMMON()MEMORY
S4       23152    S DIRECT()MEMORY()ACCESS OR DMA
S5       22       S S1 (3N) S2
S6       9        RD S5  (unique items)
S7       5        S S6 AND PY < 2004
S8       48       S S1 (20N) S2
S9       25       RD S8  (unique items)
S10      15       S S9 AND PY < 2004
S11      10       S S10 NOT S7
```

08885266 **E.I. No:** EIP01376642115
Title: The Hyperion system: Compiling multithreaded Java bytecode for distributed execution

Author: Antoniu, G.; Bouge, L.; Hatcher, P.; MacBeth, M.; McGuigan, K.; Namyst, R.
Corporate Source: LIP ENS Lyon, 69364 Lyon Cedex 07, France
Abstract: Our work combines Java compilation to native code with a run-time library that executes
Java threads in a distributed memory environment. This allows a Java programmer to view a cluster
of processors as executing a single **JAVA virtual machine**. The **separate processors** are simply
resources for executing Java threads with true parallelism, and the run-time system provides the
illusion of a shared memory on top of the private memories of the processors. The environment we
present is available on top of several UNIX systems and can use a large variety of communication
interfaces thanks to the high portability of its run-time system. To evaluate our approach, we
compare serial C, serial Java, and multithreaded Java implementations of a branch-and-bound
solution to the minimal-cost map-coloring problem. All measurements have been carried out on two
platforms using two different communication interfaces: SISCI/SCI and MPI-BIP/Myrinet. copy
2001 Elsevier Science B.V. All rights reserved. 22 Refs.
Descriptors: *Distributed computer systems; Multiprogramming; Subroutines; Java programming
language; Codes (symbols); Virtual storage; UNIX; C (programming language); Program compilers
Identifiers: Multithreading
 Classification Codes:
723.1.1 (Computer Programming Languages)
722.4 (Digital Computers & Systems); 723.1 (Computer Programming); 723.2 (Data Processing);
722.1 (Data Storage, Equipment & Techniques)
722 (Computer Hardware); 723 (Computer Software, Data Handling & Applications)
72 (COMPUTERS & DATA PROCESSING)
Abstract: ...This allows a Java programmer to view a cluster of processors as executing a single
JAVA virtual machine. The **separate processors** are simply resources for executing Java threads
with true parallelism, and the run-time system...

Fulltext available through: USPTO Full Text Retrieval Options STIC Full Text Retrieval Options
Ei Compendex(R)

08712364 **E.I. No:** EIP00115414452
Title: Ajents: towards an environment for parallel, distributed and mobile Java applications
Author: Izatt, Matthew; Chan, Patrick; Brecht, Tim
Corporate Source: York Univ, Toronto, Ont, Can
Conference Title: ACM 1999 Java Grande Conference
Conference Location: San Francisco, CA, USA   **Conference Date:** 20990612-20990614
Sponsor: ACM SIGPLAN
E.I. Conference No.: 57577
Source: Concurrency Practice and Experience v 12 n 8 Jul 2000. p 667-685
Publication Year: 2000
CODEN: CPEXEI **ISSN:** 1040-3108
Language: English
Document Type: JA; (Journal Article)   **Treatment:** A; (Applications); G; (General Review)
Journal Announcement: 0101W1

Abstract: The rapid proliferation of the World-Wide Web has been due to the seamless access it provides to information that is distributed both within organizations and around the world. In this paper, we describe the design and implementation of a system, called Ajents, which provides the software infrastructure necessary to support a similar level of seamless access to organization-wide or world-wide heterogeneous computing resources. Ajents introduces class libraries which are written entirely in Java and that run on any standard compliant Java virtual machine. These class libraries implement and combine several important features that are essential to supporting distributed and parallel computing using Java. These features include: the ability to easily create objects on remote hosts, to interact with those objects through either synchronous or asynchronous remote method invocations, and to freely migrate objects to heterogeneous hosts. While some of these features have been implemented in other systems, Ajents provides support for the combination of all of these features using techniques that permit them to operate together in a fashion that is more transparent and/or and less restrictive than existing systems. Our experimental results show that in our test environment: we are able to achieve good speedup on a sample parallel application; the overheads introduced by our implementation do not adversely affect remote method invocation times; and (somewhat surprisingly) the cost of migration does not greatly impact the execution time of an example application. (Author abstract) 32 Refs.

Descriptors: *Java programming language; Parallel processing systems; Distributed computer systems; World Wide Web; Systems analysis; Computer software; Object oriented programming; Response time (computer systems)
Identifiers: Ajent system; **Java virtual machine**; **Heterogeneous computing** resources; Middleware; Remote method invocation times; Execution time
 Classification Codes:
723.1.1 (Computer Programming Languages)
723.1 (Computer Programming); 722.4 (Digital Computers & Systems); 723.5 (Computer Applications); 912.3 (Operations Research)
723 (Computer Software); 722 (Computer Hardware); 912 (Industrial Engineering & Management)
72 (COMPUTERS & DATA PROCESSING); 91 (ENGINEERING MANAGEMENT)
Identifiers: Ajent system; **Java virtual machine**; **Heterogeneous computing** resources;

Middleware; Remote method invocation times; Execution time

07905328 **INSPEC Abstract Number:** C2001-05-6150C-034
Title: Compiling multithreaded Java bytecode for distributed execution
Author Antoniu, G.; Bouge, L.; Hatcher, P.; Macbeth, M.; McGuigan, K.; Namyst, R.
Author Affiliation: LIP, ENS Lyon, France
Conference Title: Euro-Par 2000 Parallel Processing. 6th International Euro-Par Conference.
Proceedings (Lecture Notes in Computer Science Vol.1900)   p. 1039-52
Editor(s): Bode, A.; Ludwig, T.; Karl, W.; Wismuller, R.
Publisher: Springer-Verlag , Berlin, Germany
Publication Date: 2000 **Country of Publication:** Germany   xxxv+1368 pp.
ISBN: 3 540 67956 1   **Material Identity Number:** XX-2000-02064
Conference Title: Proceedings of Euro-Par 2000. European Conference on Parallel Computing
Conference Sponsor: Deutsche Forschungsgemeinschaft; KONWIHR; Tech. Univ. Munchen;
ACM; IFIP; IEEE Task Force on Cluster Comput.; et al
Conference Date: 29 Aug.-1 Sept. 2000   **Conference Location:** Munich, Germany

Language: English   **Document Type:** Conference Paper (PA)
Treatment: Practical (P)

Abstract: Our work combines Java compilation to native code with a run-time library that executes
Java threads in a distributed-memory environment. This allows a Java programmer to view a cluster
of processors as executing a single **Java virtual machine**. The **separate processors** are simply
resources for executing Java threads with true concurrency and the run-time system provides the
illusion of a shared memory on top of the private memories of the processors. The environment we
present is available on top of several UNIX systems and can use a large variety of network protocols
thanks to the high portability of its run-time system. To evaluate our approach, we compare serial C,
serial Java, and multithreaded Java implementations of a branch-and-bound solution to the minimal-
cost map-coloring problem. All measurements have been carried out on two platforms using two
different network protocols: SISCI/SCI and MPI-BIP/Myrinet. (17 Refs)
 Subfile: C
Descriptors: Java; program compilers; programming environments
Identifiers: Java compilation; Java threads; distributed-memory environment; network protocols;
portability
Class Codes: C6150C (Compilers, interpreters and other processors); C6115 (Programming
support); C6110J (Object-oriented programming)
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Abstract: ...This allows a Java programmer to view a cluster of processors as executing a single
Java virtual machine. The **separate processors** are simply resources for executing Java threads
with true concurrency and the run-time system...
 2000

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  15475502   PASCAL No.: 02-0169434

  Distributed execution of functional programs using the JVM
  Computer aided systems theory - EUROCAST 2001 : Las Palmas de Gran
Canaria, 19-23 February 2001, selected & revised papers

  RAUBER DU BOIS Andre; DA ROCHA COSTA Antonio Carlos

  MORENO-DIAZ Roberto, ed; BUCHBERGER Bruno, ed; FREIRE Jose-Luis, ed
  UFRGS-Universidade Federal do Rio Grande do Sul, Instituto de
Informatica, Programa de Pos-Graduacao em Computacao (PPGC) Caixa
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15064, 91501-900, Porto Alegre, RS, Brazil; UCPel-Universidade
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RS, Brazil
  International workshop on computer aided systems theory, 8 (Las
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de Gran Canaria ESP) 2001-02-19
  Journal: Lecture notes in computer science,
2001, 2178 570-582

  ISBN: 3-540-42959-X ISSN: 0302-9743 Availability:
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  No. of Refs.: 16 ref.
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  Country of Publication: Germany
  Language: English
  We present in this paper the implementation, in the Java language,
of a
distributed environment for running functional programs. The idea
is to
join **Java   Virtual   Machines**   (JVMs) running on
different computers into a single virtual machine for running
functional programs. To test this virtual machine we have
implemented a
small Haskell like functional language in which parallelism is
expressed by
some simple combinators.

English Descriptors: Distributed algorithm; Program execution; JAVA
  language; Virtual machine; Functional language; Parallelism

French Descriptors: Algorithme reparti; Execution programme; Langage

JAVA;
  Machine virtuelle; Langage fonctionnel; Parallelisme

Classification Codes: 001D02B10

  2001
  ... Java language, of a distributed environment for running
functional
programs. The idea is to join **Java Virtual Machines**
 (JVMs) running on **different computers** into a single virtual
machine for running functional programs. To test this virtual machine
we...

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12527975   **Genuine Article#:** BY43J   **Number of References:** 16
Distributed execution of functional programs using the JVM

Author: Du Bois AR (REPRINT) ; Costa ACD
Corporate Source: Univ Fed Rio Grande Sul,Inst Informat, Programa Pos Grad Computac,Caixa
Postal 15064/BR-91501900 Porto Alegre/RS/Brazil/ (REPRINT); Univ Fed Rio Grande Sul,Inst
Informat, Programa Pos Grad Computac,BR-91501900 Porto Alegre/RS/Brazil/; Univ Catolica
Pelotas,UCPel, Escola Informat,BR-96010000 Pelotas/RS/Brazil/
Abstract: We present in this paper the implementation, in the Java language, of a distributed
environment for running functional programs. The idea is to join **Java Virtual Machines** (JVMs)
running on **different computers** into a single virtual machine for running functional programs. To
test this virtual machine we have implemented a small Haskell like functional language in which
parallelism is expressed by some simple combinators.
Cited References:
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  DUBOIS AR, 2000, P9, INT WORKSH FUNCT LOG
  FLANAGAN D, 1999, JAVA NUTSHELL
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  JONES SLP, 1987, IMPLEMENTATION FUNCT
  JONES SLP, 1992, IMPLEMENTING FUNCTIO
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  MEEHAN G, 1998, COMPILING FUNCTIONAL
  MEIJER E, 1997, P HASK WORKSH
  TRINDER PW, 1998, V8, P23, J FUNCTIONAL PROGRAM
  TRINDER PW, 1996, P78, P 1996 ACM C PROGR L
  WAKELING D, 1998, P335, P PRINC DECL PROGR P
  WAKELING D, 1998, V1, P1, J FUNCTIONAL PROGRAM
  WAKELING D, 1998, V1467, P39, LNCS
, 2001
Abstract: ...Java language, of a distributed environment for running functional programs. The idea is
to join **Java Virtual Machines** (JVMs) running on **different computers** into a single virtual
machine for running functional programs. To test this virtual machine we...

The co-design of virtual machines using reconfigurable hardware

Author: Kent, Kenneth Blair
Degree: Ph.D.
Year: 2003
Corporate Source/Institution: University of Victoria (Canada) (0244)
Adviser: Micaela Serra

The prominence of the internet and networked computing has driven research efforts into providing support for **heterogeneous computing** platforms. This has been exemplified by the emergence of virtual machines, such as the **Java virtual machine**. Unfortunately, most virtual computing platforms come with a performance penalty. This dissertation investigates a new approach for providing virtual computing platforms through the use of reconfigurable computing devices and hardware/software co-design.

Traditionally, when designing a hardware/software solution, instance specific methods are used to iterate towards a solution that satisfies the requirements. This is not an ideal approach as the costs involved with integrating hardware and software components are significant. This technique demotes the interface between the hardware and software, often resulting in major complications at the integration stage. These problems can be avoided through adherence to a sound methodology which the co-design process follows.

This dissertation examines the original concept of using hardware/software co-design and reconfigurable computing as a means of providing virtual machine platforms. Specifically the contributions include an advancement towards a new general computing paradigm and architecture; guidelines and several algorithms for applying the general hardware/software co-design process to the specific virtual machine class of problems; and an assessment of the potential advantages of using co-design as an implementation approach for virtual machines. These are applied to the Java virtual machine and simulated for insights into the potential benefits, requirements, and caveats of co-design for virtual machines.

This research demonstrates that using hardware/software co-design as described specifically for virtual machines, the solution can offer performance benefits over a software-only solution. These performance increases will be shown to be dependent upon several factors such as the application itself and the underlying architectural features. This dissertation will promote and give evidence that reconfigurable computing can be used for more general purpose computing and not just for specific problem instances.
Year: 2003

...prominence of the internet and networked computing has driven research efforts into providing support for **heterogeneous computing** platforms. This has been exemplified by the emergence of

virtual machines, such as the **Java virtual machine**. Unfortunately, most virtual computing platforms come with a performance penalty. This dissertation investigates a new...

01678797 ORDER NO: AAD99-12298
AN INFRASTRUCTURE FOR WORLDWIDE PARALLEL COMPUTING (DISTRIBUTED COMPUTING, INTERNET, WORLD WIDE WEB, JAVA)

Author: KWAN, THOMAS TAI YUNG
Degree: PH.D.
Year: 1998
Corporate Source/Institution: UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN (0090)
Adviser: DANIEL A. REED
Source: Volume 5911B of Dissertations Abstracts International.
PAGE 5936 . 190 PAGES
Descriptors: COMPUTER SCIENCE
Descriptor Codes: 0984

With advances in high-speed networking, exploding interest in the World Wide Web (WWW), and widespread availability of Java, millions of Java-capable computers are now connected to the Internet. These **heterogeneous** laptops, personal **computers**, and workstations are emerging as a pool of distributed, platform-independent, **Java virtual machines**. The large-scale deployment of these systems provides the hardware needed for a national and international computing infrastructure, a virtual parallel computer that can be tapped for many uses.

Although this infrastructure will have a great impact on distributed information processing and distributed computing, developing this middleware to support such wide area computing poses a host of thorny problems. The wide fluctuations in achievable network bandwidth, changing system availability, and significant differences in system capabilities make exploiting the large number of computing cycles available in Java-capable, WWW clients and servers extraordinarily difficult. One can effectively exploit these distributed computing cycles only when an infrastructure exists that can adapt to these variations, while providing reasonable performance and acceptable reliability. Simply put, the unreliable nature of wide area networks suggests the need for robust acquisition of distributed state information.

In this thesis, we describe the robust information acquisition techniques, software design, prototype implementation, and performance evaluation of a Java-based infrastructure for supporting large-scale parallel computing on the Internet. We present results on the projected cost and performance of large scale infrastructures, and show that, given current technologies, it is feasible to construct hierarchies with 25,000 WWW browsers and 600 WWW servers. In addition, we validate our performance/reliability models via experiments, show that the time scale of world view maintenance and task scheduling are on the order of minutes, and that prediction techniques can enable the maintenance of a distributed hierarchy for large scale application scheduling.
Year: 1998

...availability of Java, millions of Java-capable computers are now connected to the Internet. These **heterogeneous** laptops, personal **computers**, and workstations are emerging as a pool of distributed, platform-independent, **Java virtual machines**. The large-scale deployment of these systems provides the hardware needed for a national and...

11/5,K/5 (Item 1 from file: 2) **Links**

Language: German **Document Type:** Journal Paper (JP)
Treatment: Practical (P)

Abstract: This article describes a "JAVA" language capable of interworking with **different computer** systems. It illustrates a **Java virtual machine (JVM)**, which can convert compiled byte code into machine-specific instructions. It refers to JAVA applets J2EE, J2SE and J2ME, and lists their memory requirements. It also discusses JIT and AOT compilers for embedded applications and illustrates "Jazelle" modules integrated into ARM cores, to allow change between 32-bit ARM mode and 16-bit Thumb mode. In conclusion, it presents a Java thermometer demonstration kit from the Zilog Company.

 Subfile: C
Descriptors: embedded systems; Java; program compilers; virtual machines
Identifiers: JAVA language; embedded computer systems; Java virtual machine; compiled byte code; machine-specific instructions; JAVA applet memory requirements; compilers; Jazelle modules; ARM cores; ARM mode; Thumb mode; Java thermometer demonstration kit; 32 bit; 16 bit
Class Codes: C6140D (High level languages); C6150C (Compilers, interpreters and other processors)
Numerical Indexing: word length 3.2E+01 bit; word length 1.6E+01 bit
  Copyright 2004, IEE

Abstract: This article describes a "JAVA" language capable of interworking with **different computer** systems. It illustrates a **Java virtual machine (JVM)**, which can convert compiled byte code into machine-specific instructions. It refers to JAVA applets...
  2003

11/5,K/6 (Item 2 from file: 2) **Links**

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INSPEC

08882289 **INSPEC Abstract Number:** C2004-04-4210L-031
Title: Efficient implementation of strict floating-point semantics
Author Shudo, K.; Sekiguchi, S.; Muraoka, Y.
Author Affiliation: National Inst. of Adv. Ind. Sci. & Technol., Japan
Journal: Transactions of the Information Processing Society of Japan   vol.44, no.6   p. 1570-82
Publisher: Inf. Process. Soc. Japan ,
Publication Date: June 2003 **Country of Publication:** Japan
CODEN: JSGRD5 **ISSN:** 0387-5806
SICI: 0387-5806(200306)44:6L.1570:EISF;1-H
   Material Identity Number: T205-2003-008

Language: Japanese   **Document Type:** Journal Paper (JP)
Treatment: Applications (A); Practical (P)
Abstract: IA-32 **processors** yield **different** results of floating-point operations from other processors, even though they are compliant with IEEE 754. The **Java** specifications need **runtime** systems to implement the FP-strict semantics, which other IEEE 754 compliant processors naturally fulfill. We implemented the semantics on a Java Just-In-Time compiler for IA-32. This study reveals that single-precision operations can be performed with precision control bits of the processor staying as double-precision. Performance evaluation demonstrates that our implementation method reduced the performance decline by the semantics down to 40%. (9 Refs)
 Subfile: C
Descriptors: formal specification; Java; program compilers; programming language semantics; software performance evaluation
Identifiers: floating-point semantics; Java just-in-time compiler; precision control bits; performance evaluation; IA-32
Class Codes: C4210L (Formal languages and computational linguistics); C6150N (Distributed systems software); C6150C (Compilers, interpreters and other processors); C6110F (Formal methods)
Abstract: IA-32 **processors** yield **different** results of floating-point operations from other processors, even though they are compliant with IEEE 754. The **Java** specifications need **runtime** systems to implement the FP-strict semantics, which other IEEE 754 compliant processors naturally fulfill...
 2003

11/5,K/7 (Item 3 from file: 2) **Links**

07622443 **INSPEC Abstract Number:** B2000-07-6210C-105, C2000-07-7410F-116
Title: Distributed object middleware for network software architecture
Author Weinstein, S.B.
Conference Title: NOMS 2000. 2000 IEEE/IFIP Network Operations and Management Symposium
'The Networked Planet: Management Beyond 2000' (Cat. No.00CB37074)   p. 1003
Editor(s): Hong, J.W.; Weihmayer, R.
Publisher: IEEE , Piscataway, NJ, USA
Publication Date: 2000 Country of Publication: USA xxvii+1022 pp.
ISBN: 0 7803 5928 3   Material Identity Number: XX-1999-03415
Conference Title: Proceedings of Network Operations and Management Symposium
Conference Date: 10-14 April 2000   **Conference Location:** Honolulu, HI, USA
Medium: Alos available on CD-ROM in PDF format

Language: English   **Document Type:** Conference Paper (PA)
Treatment: Practical (P)

Abstract: Summary form only given. The tutorial describes the role of distributed object technology in making future networks more open, programmable, and responsive to quickly changing needs. It places particular emphasis on CORBA and Java as foundation technologies. Beginning from even more fundamental concepts of sockets and remote procedure calls, the tutorial explains the elements of the CORBA ORB and how service interfaces written in CORBA IDL (Interface Definition Language) are compiled into different native languages. This is used to realize interoperability among software modules written in different languages and running on **different computing** platforms. Applications to both control and management are suggested. A brief comparison is made with the alternative DCOM. The **Java Virtual Machine** and protections built into the Java language are also explained, as is the use of Java applets to install CORBA objects in client machines, integrating the two key technologies. Major active network architectures, and how they use transportable software, are reviewed. Programmable architectures and the concept of virtual networks are introduced, including description of the reference model and the interfaces being standardized in IEEE P1520, Programming Interfaces for Networks. Examples are given of services being built on this technology. The tutorial requires only a basic understanding of protocols and of communications and computing concepts. (0 Refs)
 Subfile: B C
Descriptors: client-server systems; distributed object management; Java; open systems; protocols; remote procedure calls; software architecture; software portability; telecommunication computing; telecommunication control; telecommunication network management
Identifiers: distributed object middleware; network software architecture; sockets; remote procedure calls; CORBA ORB; service interfaces; CORBA IDL; Interface Definition Language; interoperability; software modules; control; management; Java Virtual Machine; Java applets; active network architectures; transportable software; programmable architectures; virtual networks; IEEE P1520; Programming Interfaces for Networks; protocols
Class Codes: B6210C (Network management); C7410F (Communications computing); C6110J (Object-oriented programming); C6150N (Distributed systems software)

Abstract: ...is used to realize interoperability among software modules written in different languages and running on **different computing** platforms. Applications to both control and management are suggested. A brief comparison is made with the alternative DCOM. The **Java Virtual Machine** and

protections built into the Java language are also explained, as is the use of...

2000

11/5,K/8 (Item 4 from file: 2) **Links**

06907521 **INSPEC Abstract Number:** C9806-6110P-015
Title: Heterogeneous parallel computing with Java: jabber or justified?
Author Dietz, H.G.

Author Affiliation: Purdue Univ., West Lafayette, IN, USA

Conference Title: Proceedings Seventh Heterogeneous Computing Workshop (HCW'98) (Cat.
No.98EX126)   p. 159-62
Editor(s): Antonio, J.K.
Publisher: IEEE Comput. Soc , Los Alamitos, CA, USA
Publication Date: 1998 **Country of Publication:** USA   ix+201 pp.
ISBN: 0 8186 8365 1   **Material Identity Number:** XX98-00898
U.S. Copyright Clearance Center Code: 0 8186 8365 1/98/$10.00
Conference Title: Proceedings Seventh Heterogeneous Computing Workshop (HCW'98)
Conference Sponsor: IEEE Tech. Committee on Parallel Process.; Office of Naval Res
Conference Date: 30 March 1998   **Conference Location:** Orlando, FL, USA

Language: English   **Document Type:** Conference Paper (PA)
Treatment: Practical (P)

Abstract: Is Java a good language for programming **heterogeneous** parallel **computing** systems? It
is a well-designed modern language that, combined with the **Java Virtual Machine (JVM)**, offers a
myriad of modern programming features and excellent portability. However, in speedup-oriented
heterogeneous computing, the primary concern is obtaining the best possible execution speed from
the heterogeneous system. The paper briefly discusses what heterogeneous parallel computing is
really about, lists some of the key features of Java, and finally summarizes how well Java matches
the task of programming for heterogeneous parallel computing. (0 Refs)
 Subfile: C
Descriptors: object-oriented languages; object-oriented programming; parallel programming
Identifiers: heterogeneous parallel computing system programming; Java Virtual Machine;
portability; speedup-oriented heterogeneous computing; execution speed; Java
Class Codes: C6110P (Parallel programming); C6110J (Object-oriented programming); C6150N
(Distributed systems software); C6140D (High level languages)

Abstract: Is Java a good language for programming **heterogeneous** parallel **computing** systems? It
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myriad of modern programming features and excellent portability. However, in speedup-oriented
heterogeneous computing, the primary concern is obtaining the best possible execution speed from
the heterogeneous system. The...
 1998

2159080   **NTIS Accession Number:** ADA373930/XAB
Damage Control and Log Taking Java Applications for Shipboard Wireless LANs
(Master's thesis)
Sayat, H.
Naval Postgraduate School, Monterey, CA.
Corporate Source Codes: 019895000; 251450

Dec 1999   235p
Language: English   Document Type: Thesis
Journal Announcement: USGRDR0013
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NTIS Prices: PC A12/MF A03
Country of Publication: United States

Damage control communications and watchstander log taking practices need to be improved for
onboard submarines and ships. Currently, damage control rely on a slow, error prone process
involving sound powered telephone talkers and grease pencil annotated white board. Also log taking
practice suffers from similar problems. Logs are taken on paper forms, corrected daily, and filed in
cabinets. Wireless network and mobile computing devices can be a solution to improve the efficiency
of these practices along with some others. In this thesis, a distributed Java prototype software is
developed to utilize the benefit of an onboard Intranet utilizing wireless LANs and pen based
handheld computers. For both practice areas, data could be entered into a handheld computer and
then wirelessly transmitted to a database server. Those data can be used by powerful main platforms
and different supervisors can reach it any time in parallel. An applet and a servlet program modules
are created to provide small, user friendly, platform independent electronic forms. Since handheld
computers have some limitations like screen dimensions, computing power, and **Java Virtual
Machine**, features of these software approaches are tested on a few **different** handheld **computers** to
find the best software approach and computer product.
Descriptors: *Local area networks; *Damage control; *Java programming language; Data bases;
Theses; Prototypes; Computer applications; Hand held; Radiotelephones
Identifiers: NTISDODXA
Section Headings: 62B (Computers, Control, and Information Theory--Computer Software); 62GE
(Computers, Control, and Information Theory--General)
...independent electronic forms. Since handheld computers have some limitations like screen
dimensions, computing power, and **Java Virtual Machine,** features of these software approaches are
tested on a few **different** handheld **computers** to find the best software approach and computer
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S2        59638   S JVM OR JAVA()VIRTUAL()MACHINE? ? OR JAVA(3N) INTERPRETER OR
JAVA(2N) RUNTIME OR JIT
S3         1592   S COMMON()MEMORY
S4        75782   S DIRECT()MEMORY()ACCESS OR DMA
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